Appl. No. 09/940,819

IN THE SPECIFICATION

On page 13, replace the paragraph at lines 20-23 with the following paragraph:

A beam splitter 14 [[4]] splitting a part of the beam b_1 into beam b_2 may be arranged between prism 11 and the detector 13. The split beam is then incident via, for example, two lenses 15 and 16 on a television camera, which is coupled to a monitor (not shown) on which the alignment marks P_2 and M_2 are visible to an operator of the lithographic apparatus.

On page 18, replace the paragraph at lines 15-21, with the following paragraph:

Fig. 7 also shows, for illustrative purposes, the sub-beams $b_{P10}(+1)$ and $b_{P10}(-1)$, which, in the embodiment of Fig. 5, would be diffracted in the first plus and minus first orders by the fine substrate grating P_{10} alone, as well as the sub-beams $b_{P11}(+1)$ and ~~$b_{P10}(-1)$~~ $b_{P11}(-1)$ which would be diffracted in the plus and minus first orders by the additional fine grating P_{11} alone. Due to the small periods of these fine gratings the diffraction angles are so large that these subbeams do not even enter the projection lens system. This means that the alignment device images only the beat pattern rather than an individual fine alignment mark.

On page 19, replace the paragraph beginning at line 12, with the following paragraph:

Fig. 8 is the circuit diagram of an off-axis alignment-measuring device. In this Figure, the composite substrate grating structure, including the beat pattern, is denoted by P_1 ~~P_c~~. A parallel alignment-measuring beam b having a wavelength λ incident on this structure is split up into a number of sub-beams extending at different angles α_n (not shown) to the normal on the grating, which angles are defined by the known grating formula:

$$\sin \alpha_n = N \cdot \lambda / P$$

where N is the diffraction order number and P the grating period. The path of the sub-beams reflected by the composite grating structure incorporates a lens system

L_1, which converts the different directions of the sub-beams into different positions u_n of these sub-beams in a plane 78:

$$u_n = f_1 \cdot \alpha_n$$

In the plane 78, means may be provided for further separating the different sub-beams. To this end, a plate may be arranged in this plane, which is provided with deflection elements in the form of, for example wedges 81-86. In Fig. 8 [[4]], the wedge plate is denoted by WEP. The wedges are provided on, for example the rear side 80 of the plate. A prism 77 can then be provided on the front side of the plate, with which the alignment-measuring beam coming from the radiation source 76, for example a He-Ne laser, can be coupled into the alignment-measuring device. This prism can also prevent the 0-order sub-beam from reaching the detectors. The number of wedges corresponds to the number of sub-beams to be used. In the embodiment shown, there are six wedges per measuring direction for the plus orders so that the sub-beams up to and including the 7-order can be used for alignment measuring. All wedges have a different wedge angle so that an optimal separation of the sub-beams is obtained.